DECEMBER 4, 1922

AVIATION

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AVIATION

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Government Aid for Commercial Aviation

PRESIDENT HARDING in his message to Congress on shipping made the following significant statement: "I believe in Government aid becomingly bestowed. We have aided industry through our tariffs. We have aided railway transportation in land grants and loans. We have aided the construction of market roads and the improvement of inland waterways. We have aided reclamation and irrigation and the development of water power. We have loaned for seed grains in anticipation of harvests. We have expended millions in investigation and experimentation to promote a common benefit, though a limited few are the direct beneficiaries. We have loaned hundreds of millions to promote the marketing of American goods. It has all been commendable and highly worth while."

He might have gone further, had he wished to show the country that the history of transportation facilities has been the greatest factor in the growth of its industrial development. The pioneer railroads not only received land grants that made the transcontinental lines possible, but have had legislative support and regulation of a character that made their expansion practicable. Shipping has been given government aid in innumerable ways. The lighthouse and life saving services have aided in making sea going less hazardous. Huge appropriations have been made for the improvements of harbors, rivers and lakes. Government inspection and control has been reasonably conducted.

And more recently with the overwhelming flood of automobiles, both of the pleasure and industrial types, the government has given aid of the most direct kind. It is reported that there will be spent for road building during the present year a sum equalling one hundred dollars for each car that is operated in this country. Over a period of years, government aid bestowed in this form becomes so large that it is one of the major expenditures of our people.

Aircraft must have government aid or remain for a long time an undeveloped means of transportation. It is not possible to operate air transportation generally without government aid in the form of landing fields, meteorological service, night beacons, radio and sensible regulation. And until the federal, state and municipal authorities decide to treat aircraft with the same broad consideration that they have granted the railways, ships and automobiles, there will be no such thing as commercial aerial transportation.

But, going even further than indirect government aid, there is an imperative reason for every country to aid in the establishment of air routes and have them flown regularly. Military roads have always existed as a measure of national safety. Air transportation will have to be fostered for similar reasons. One of the great problems of the next war will be air personnel and aircraft equipment. Neither can be improvised if we lack a potential organization capable of rapid expansion in case of war. The pilots of the world war are now four years older than when they last saw action. In a few years they will no longer constitute a national reserve, for it was conclusively shown in the late war that the fighting period of service pilots is at the most eight years. Hence the only economical method of having a reservoir of trained airmen is to foster commercial aviation.

While aircraft for transportation purposes differ to some extent from those used for war, the essential requirement for national security is an industry having the technical staff and mechanical equipment which will enable it to take up war time production on instant notice. Other countries have recognized this fact and are giving direct government aid to aviation.

The great air lines of Europe are all the result of government aid. Great Britain is contributing $1,000,000 to encourage civil air transport. The air ministry pays approved air lines a sum equal to 25 per cent of their gross receipts, paying besides £3 for every passenger carried and three pence for each pound of express transported. The London-Paris line receives £15,000 for 600 trips; the London-Cologne line receives £25,000 for 600 trips and the London-Amsterdam-Berlin line will get £55,000 for 500 trips. On these three lines Great Britain will expend half a million dollars so that these air routes will be kept open.

In France, government aid is based on a system too technical to permit of a detailed explanation here, but its main features are a "construction subsidy" which equals one-half the purchase price of each modern transport airplane, and premiums paid for commercial efficiency.

Germany, Poland, Czechoslovakia, Russia and Rumania—among others—are making the operation of aircraft lines possible through government aid. In fact, there can be no possible commercial aviation on a large scale without government aid both direct and indirect.

Lessons of European Gliding Meets

THE article by Edmund T. Allen on "Three European Gliding Meets" which appeared in the last issue will generally be welcomed by Americans interested in gliding and soaring flight.

Before becoming interested in gliding flight, Mr. Allen was a distinguished test pilot of the Army Air Service. Last summer he added to his accomplishments by piloting the only American entry in any of the European sailplane meets, and he has since had the opportunity of obtaining first hand information on the present state of the art in Europe. All this gives especial value to his observations as to what is a good gliding terrain and what is a good sailplane. His remarks on the general organization of sailplane competitions are also highly interesting, and it is to be hoped that the organizers of the forthcoming American gliding meets will heed his suggestions as to how the art of gliding can best be furthered.

The Army Air Service

Comprehensive Statement of its Organization, Functions and Operations

By Maj. Gen. Mason M. Patrick

Chief of Air Service, U. S. Army

When the National Defense Act of 1916 was amended by Congress in June 1920, there was created the basis for the present organization of our Army. Prior to that time the Air Service had had no separate existence as a branch of the Army, although during the World War it had far outgrown its parent organization, the Signal Corps. The National Defense Act, as amended, contemplated the organization of a regular and civilian army that would be capable of rapid mobilization; the regular force to consist of approximately 17,000 officers and 280,000 enlisted men, and the civilian force to comprise the remainder of an army of approximately 2,000,000. The approximate proportions of one-sixth regulars, one-third National Guard and one-half Organized Reserve were established.

This large army is divided into six field armies, each consisting of three corps and each corps of three divisions. In addition, there is a general head-quarters reserve for the six field armies. In each of these sub-divisions are to be found certain Air Service units thought, at the time this organization was formed, to be sufficient, but, due to subsequent developments, now believed to be too few to perform the greater mission the Air Service must undertake in an emergency.

Authorized Air Service Strength

Of the 17,000 officers and 280,000 enlisted men contemplated for the regular army, only 1516 officers and 16,000 enlisted men were assigned to the Air Service. These numbers constitute far too small a force efficiently to carry out the many functions that have been assigned to the Air Service. The President, however, was authorized by the National Defense Act, as amended, to increase or decrease the strength of any branch of the service by not more than 15 per cent. The Air Service did not receive the benefit of this clause until reductions were later made by Congress in the total strength of the regular army.

With only 1516 officers and 16,000 enlisted men the problem of supplying one-sixth of the Air Service units required for the six field armies and general headquarters reserve and, in addition, creating a school system and caring for numerous other needs and projects was most difficult and quite impossible of solution without calling upon the Organized Reserve to carry a portion of the burden. Since the primary mission of the regular Air Service in time of peace is to train the Air Service components of the citizen army, the organization of tactical units was considered only after the personnel for the schools had been determined. This resulted in allocating to the Organzed Reserve a number of Air Service units in excess of its proportion.

Similarly, the National Guard is unable to maintain its proportion of Air Service units with the result that the Organized Reserve has to bear another additional burden. In fact, it is rather doubtful whether the National Guard can complete the organization of the few flying units assigned, on account of the great expense of equipment and the small state appropriation. At present the organization of more flying units in the National Guard has been temporarly suspended until experience with the seven observation squadrons now federally recognized may dictate a further course of procedure.

There are at present seven Air Service squadrons of the National Guard, located as follows: Boston, New York, Baltimore, Birmingham, Kokomo, Nashville, and St. Paul. Of these organizations all except the one at Boston have received their flying equipment and are actually operating. The Boston unit will receive its airplanes upon completion of the airdrome now in process of construction at that city. All flying equipment is furnished by the regular Air Service from surplus stock or stock in excess of current requirements, without reimbursement, and the Air Service has assigned an officer to each of these units as instructor. The progress made by these squadrons is most encouraging and their ability to participate in actual operations was demonstrated during the training camps of the past summer.

The maintenance and operation of an Air Service organization of the National Guard is expensive and for this reason there has existed a feeling that the results to be expected were not commensurate with the relatively large expenditure of funds. The existing squadrons have however "proved themselves" and it is now felt that the future of aviation in the National Guard is assured. It is hoped that within the next fiscal year the remaining eleven of the eighteen observation squadrons pertaining to the eighteen National Guard divisions will be provided for, and that these squadrons will be able, in addition to their tactical training, to perform such other work as riot duty, making mosaics of cities and special localities, making aerial photographs of special projects, etc., that will encourage the Congress and the states to continue the necessary appropriations.

The Organized Reserve is the great pool in which we find over one-half of all the units for the six field armies and the general headquarters reserve. It not only supplies the personnel for three of the field armies, and most of the general headquarters reserve, but also for those units that would normally be included in the allotment to the regular army and the National Guard, but which cannot be thus organized. The organization of this great force in the Reserve is intrusted to the corps area commanders, who, through boards of officers, have allotted to communities all of the numerous units. Their organization is at the present time progressing satisfactorily and creating great *esprit de corps*, and competition in many places.

Twenty Regular Air Service officers have already been assigned to the various corps areas for duty with the Organized Reserve and more will be assigned in the future.

Distribution of Air Service Units

The following table will indicate the distribution of the principal units of the Air Service to the three components of our Army:

Units	*Reg. Army*	*Natl. Guard*	*Org. Res.*	*Total*
Observation Squadrons	9	36	73	118
Pursuit Squadrons	4	0	52	56
Attack Squadrons	4	0	24	28
Bombardment Squadrons	4	0	0	4
Headquarters Squadrons	0	0	7	7
Service Squadrons (Air Parks)	3	7	37	47
Balloon Companies	5	36	63	104
Airship Companies	4	0	20	24
Balloon Service Companies (Parks)	0	9	17	26
Airdrome Companies	0	0	21	21
Photo Sections	11	35	74	120
Communications Sections	0	6	32	38

It is at once apparent from this table that the bulk of the Air Service is allotted to the Organized Reserve. The total number of all types of Air Service units required for the six field armies is 816, of which the regular force can carry only 68 and the National Guard 186, while the Organized Reserve has 562. This last number will probably be increased by the decrease in allotments to the National Guard. Our Air Service for war is truly a citizen force.

Never before in our military history has there been so definitely assured the development of an army in time of peace that will have at least an organization and a nucleus of train-

ing that will greatly reduce the time required for mobilization. The new military policy preserves the lessons of the World War in an active form; it perpetuates the old organizations and keeps their heroic records ever before us; it keeps a framework of organization upon which to build; it takes measures that have never before been taken effectively to secure our national defense.

In 1921 Congress saw fit, principally for economical reasons, to reduce the regular forces from 280,000 to 150,000. Accordingly, the Air Service suffered a reduction to 10,300 enlisted men. Reorganization had to be effected; increased responsibilities had to be placed where heavy burdens already

Maj. Gen Mason M. Patrick, Chief of Air Service

rested, and many functions assigned to the Air Service had to be curtailed.

Again, in 1922, Congress has placed a further limitation on the strength of the regular forces, reducing them this time to 125,000, with an Air Service of 8,500. The commissioned personnel is also reduced by nearly 150. Many units have become inactive and the work of the Air Service correspondingly retarded. The present force is struggling with its problems and has already shown itself to be far too small for the missions at hand.

Units that became inactive due to the reductions made in 1921 and 1922 have not been assigned to the National Guard and the Organized Reserve, but instead a nucleus of trained personnel for each is maintained in the active units, so that in event of expansion, the inactive units may have a framework upon which to build. This has cast a burden upon the remaining active units of the regular force that was never contemplated at the time of amending the National Defense Act.

The present distribution of the reduced strength Air Service, by station, is as follows:

Air Service Stations and Troops

Aberdeen Proving Ground, Aberdeen, Md.
Airship Company No. 18 (Reduced Strength)
49th Squadron (Bombardment). Detached from 2nd Group (Bombardment) at Langley.

Bolling Field, Anacostia, D. C.
99th Squadron (Observation) (R.S.)
Photo Section No. 3
Service Squadron No. 1 (R.S.)
Headquarters Detachment

Brooks Field, San Antonio, Tex.
Primary Flying School, organized as
11th Group (School), consisting of
Headquarters, 11th Group (School)
46th Squadron (School)
47th Squadron (School)
Service Squadron No. 7
Photo Section No. 24

Chanute Field, Rantoul, Ill.
Technical School
15th Squadron (Observation) (R.S.)
Photo Section No. 5

Crissy Field, San Francisco, Calif.
91st Squadron (Observation)
Photo Section No. 15
Air Intelligence Section No. 3

Ft. Bliss, Tex.
12th Squadron (Observation) (R.S.)
Photo Section No. 1
Air Intelligence Section No. 2

Kelly Field, San Antonio, Tex.
1st Wing (Provisional), consisting of
Headquarters, 1st Wing
Advanced Flying School, organized as 10th Group (School), consisting of
Headquarters, 10th Group (School)
40th Squadron (School)
41st Squadron (School)
42nd Squadron (School)
43rd Squadron (School)
Service Squadron No. 13
Photo Section No. 22
3rd Group (Attack) (less Photo Section) consisting of
Headquarters, 3rd Group (Attack)
8th Squadron (Attack)
13th Squadron (Attack)
26th Squadron (Attack)
90th Squadron (Attack)
Service Squadron No. 5

Langley Field, Hampton, Va.
2nd Wing (Provisional), consisting of
Headquarters, 2nd Wing
2nd Group (Bombardment), consisting of
Headquarters, 2nd Group (Bombardment)
11th Squadron (Bombardment)
20th Squadron (Bombardment)
49th Squadron (Bombardment) (at Aberdeen)
96th Squadron (Bombardment)
Service Squadron No. 4
Photo Section No. 2
50th Squadron (Observation) (R.S.)
Photo Section No. 20
Service Squadron No. 3
Airship Company No. 19
Field Officers School

Mitchel Field, Garden City
9th Group (Observation), consisting of
Headquarters, 9th Group (Observation)
1st Squadron (Observation) (R.S.)
5th Squadron (Observation) (R.S.)
Photo Section No. 8
Photo Section No. 14
Service Squadron No. 6
Air Intelligence Section No. 1

Montgomery, Ala.
22nd Squadron (Observation)
Photo Section No. 4

Post Field, Fort Sill, Okla.
44th Squadron (Observation) (R.S.)
Photo Section No. 23

Riley, Kans.
16th Squadron (Observation) (R.S.)
Photo Section No. 9

Scott Field, Belleville, Ill.
Balloon and Airship School, organized as
1st Airship Group (less 1 company) consisting of
Headquarters, 1st Airship Group
Airship Company No. 8
Airship Company No. 9
Airship Company No. 12
Service Company (Airship) No. 24
Photo Section No. 21

Selfridge Field, Mt. Clemens, Mich.
1st Group (Pursuit), consisting of
Headquarters, 1st Group (Pursuit)
17th Squadron (Pursuit)
27th Squadron (Pursuit)
94th Squadron (Pursuit)
95th Squadron (Pursuit)
Service Squadron No. 2

Wilbur Wright Field, Fairfield, Ohio
88th Squadron (Observation) (R.S.)
Photo Section No. 7

Oahu, T. H.
5th Group (Composite), consisting of
Headquarters, 5th Group (Composite)
4th Squadron (Observation)
6th Squadron (Pursuit)
23rd Squadron (Bombardment)
Photo Section No. 11
Service Squadron No. 10
Air Intelligence Section No. 11

Canal Zone
6th Group (Composite), consisting of
Headquarters, 6th Group (Composite)
7th Squadron (Observation)
24th Squadron (Pursuit)
25th Squadron (Bombardment)
Photo Section No. 12
Service Squadron No. 8
Air Intelligence Section No. 10

Philippine Islands
4th Group (Composite), consisting of
Headquarters, 4th Group (Composite)
2nd Squadron (Observation)
3rd Squadron (Pursuit)
28th Squadron (Bombardment)
Photo Section No. 6
Service Squadron No. 11
Air Intelligence Section No. 12
190 Flying Cadets

Reduced Strength Air Service

The present reduced strength Air Service comprises:

(a)—A reduced strength Division Air Service placed in each corps area and under the orders of the corps area commander. This consists of an observation squadron and a photo section that cooperate with any service schools in the corps area, furnish Air Service for summer training camps, make mosaics and general aerial photographs, lend cooperation in maneuvers and, in general, perform any missions that the corps area commander may assign.

(b)—A minimum of Air Force tactical units, namely:
1 Attack Group
1 Bombardment Group
1 Pursuit Group

These tactical units must develop the tactics used in the three types of squadrons of the Air Force; they must act as the main fighting component of the regular Air Service in minor emergencies; they constitute the offensive component of our regular Air Service.

(c)—A number of Special Service Schools and school troops as follows:

Primary Flying School, Brooks Field, San Antonio, Tex.
Advanced Flying School, Kelly Field, San Antonio, Tex.
Balloon and Airship School, Scott Field, Belleville, Ill.
Technical School, Chanute Field, Rantoul, Ill.
Field Officers School, Langley Field, Hampton, Va.
190 Flying Cadets

The Flying Schools

The Primary Flying School is the place where all flying training begins. Here the student learns not only the rudimentary principles of flying but also the art of handling all types of service airplanes, even to include acrobatic work and night flying. The course also includes instruction in mechanics and maintenance of airplanes and motors, meteorology, aerodynamics, military drill, radio, aerial navigation, machine guns, and photography.

The Advanced Flying School takes the graduate of the Primary Flying School and teaches him the specialty for which he is found best qualified. This school has four main departments, viz., observation, attack, bombardment, pursuit. When the student graduates from one of the departments he is ready for assignment to a tactical unit in the field, where he gains experience and gets further practice in the work taught him at the schools. The Advanced Flying School is a consolidation of the old Observation, Pursuit, Attack and Bombardment Schools, and together with the Primary Flying School, in close proximity at Brooks Field, constitute what might be termed an Air Service Training Center. The establishment of a training center of this kind makes for greater efficiency and economy; it saves the time and cost of travel heretofore consumed between schools; it shortens the combined courses of instruction and greatly reduces the overhead. This is the form of organization that proved so effective in the American Air Service Issoudun in France during the World War, and the one that will undoubtedly be used in this country in event of an emergency requiring the training of a large number of flying personnel.

The expense of carrying on schools for flying training makes prohibitive their establishment in the National Guard, hence the Primary and Advanced Flying Schools are the source of practically all the flying personnel of the National Guard, as well as of the Organized Reserve. It is desirable that the maximum number of officers from these two components of our army attend the schools of the Regular Force.

Balloon and Airship School

The Balloon and Airship School is a consolidation for economy and more effective training of the Balloon School that has been located at Ross Field in California and the Airship School that has been located at Langley Field in Virginia. The reorganization effected in July of this year contemplates that a three-company airship group shall carry on the work of the school. This will, in addition, afford an opportunity for the development of the airship group organization and the tactical use of airships. The student at the Balloon and Airship School receives his first flying training in captive balloons, then free balloons, and finally progresses through the various types of airships. The course also includes a very extensive and thorough study of meteorology, military subjects, aerodynamics and aerostatics, aerial navigation, photography, gas, motors, winches, instruments, and machine guns. As in the case of the Primary and Advanced Flying Schools, so here National Guard and Reserve Officers are very welcome.

The Technical School

The Technical School is the place where the enlisted mechanic is taught to be a specialist in the Air Service. Graduates from this school are finished mechanics and capable of commanding good salaried positions in commercial life, should they find the army unattractive after the completion of their enlistment period. Specialists of twenty-one different classes ranging from an airplane mechanic to a stenographer and typist are produced by this school.

The Technical School should be the source of practically all the mechanical personnel of the Air Service and it is hoped that the day is not far distant when every unit of the Air Service will number among its personnel a large proportion of graduates. Mechanical proficiency makes for better maintenance of equipment and greater safety in flying, and there is not a flier who would not welcome a crew of Technical School graduates to keep his plane in commission.

This school is located near the center of the mechanical industries, especially the automobile industry, and in a territory where recruiting is good. The Technical School now has courses in radio and photography, heretofore taught in separate schools, and officers, as well as enlisted men, attend. The officers are trained for the positions of communications officers and photographic officers in the tactical units, and the enlisted men are trained for the positions of mechanics, operators, developers, printers, etc.

The Field Officers School is the institution from which every enterprising Air Service officer hopes some day to graduate. The new name proposed for this school—Tactical School—is descriptive more or less of its function. It is the school that teaches the tactics of the Air Service. For its operation there should be at least one Air Service unit of every type located at the same station and available, in addition to their other duties, for cooperation with the school. Unfortunately, this is not the case at the present time and only a few of the units are available, due to the small authorized strength of the Air Service.

(To be concluded)

Next F.A.I. Meeting in Sweden

The next annual meeting of the International Aeronautic Federation will take place in the summer of 1923, coincident with the aeronautical exposition to be held at Gothemburg, Sweden.

Bids Asked for Air Mail Route

To Carry 500 lb. of Mails by Aircraft Between New Orleans and Pilottown, La.

Sealed proposals will be received at the Post Office Department in the city of Washington until 4.30 p. m. of Dec. 20, 1921, for carrying the United States mails on the route hereinafter described, from Feb. 1, 1923, (or such subsequent date as the Department may order), to June 30, 1923, in safe and suitable aircraft as follows:

Conditions of the Bid

From New Orleans, La., to Pilottown, La., about 80 miles, and back, in close connection at Pilottown with outgoing Central American and Havana, Cuba, steamers; and at Pilottown, or Quarantine, with the same incoming steamers, daily except Sundays and holidays, for the transportation of not to exceed 500 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General; the contractor to receive and deliver the mails at the foot of Canal Street in New Orleans, and to deliver the mails to the steamships at Pilottown and receive the mails from the steamships at Pilottown or Quarantine. Bids to state rate per pound trip. Bond required with bid, $2,000.

Proposals submitted in response to this advertisement will be subject to the Postal Laws and Regulations and to the conditions and requirements set forth in the instructions to bidders, copies of which, together with blank form of proposal with accompanying bond, can be obtained from the Second Assistant Postmaster General, Post Office Department, Washington, D. C., or from the Postmaster at New Orleans, La.

A definite schedule has not been decided upon. The following is a tentative schedule: leave New Orleans daily except Sundays and holidays not later than 4.00 p. m.; leave Pilottown or Quarantine daily except Sundays and holidays not later than 9.00 a. m.

Decision as to award of contract will be made as soon as practicable after Dec. 20, 1922, and the accepted bidder shall execute the formal contract prescribed by the Department covering service advertised with good and sufficient sureties acceptable to the Postmaster General, and file such contract within thirty days from date of acceptance of the proposal. The Postmaster General reserves the right to reject all bids.

The contract may be terminated by Congress, or by the Postmaster General whenever, in his judgment, the interests of the Postal Service shall so require, in which latter event the contractor shall be allowed, as full indemnity, pay for such a number of round trips as shall represent the average monthly requirement, provided, that such termination is not on account of delinquency on the part of the contractor or his agents.

What Bidders Should Do

Bidders should state the number of planes it is proposed to provide for carrying the mails on the route (including the number in reserve for each plane in the air); description of planes, showing number of motors, horsepower, speed, cruising radius.

Bidders and their sureties are urged to acquaint themselves fully with the laws of Congress relating to contracts for carrying the mails (the more important provisions of which are cited herein) and to familiarize themselves with requirements set forth in this advertisement and with the service to be performed before they assume any liability as bidders or sureties, so as to prevent misapprehension or cause of complaint thereafter.

Bidders will be required to furnish bond with two or more individual sureties approved by a postmaster of the first, second or third class, which bond must be acceptable to the Postmaster General, such sureties to be shown to be owners of real estate valued above all incumbrances at an amount double the amount of the bond required, or a surety company which has complied with the provisions of the acts approved Aug. 13, 1894, and Mar. 23, 1910. A list of such surety companies may be found on page 60 of the Official Postal Guide for July 1920, a copy of which is furnished each postmaster.

If the accepted bidder fails to file a properly executed formal contract for the service in the Department within thirty days from the date of acceptance of the bid, or having executed the contract fails to provide the service required, he may be declared a failing bidder or contractor and proceedings taken according to law.

Mail compartments in all planes to be made fireproof to the satisfaction of the Post Office Department.

The Postmaster General may order an increase of service in weight of mail to be transported or number of trips, with the consent of the contractor, by allowing therefor not to exceed a pro rata increase on the contract pay for the mileage or weight involved.

The contract for the service shall contain the following covenant.

The contractor expressly warrants that he has employed no third person to solicit or obtain this contract in his behalf, or to cause or to procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that he has not paid, or promised or agreed to pay to any third person, on consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission, or percentage; and that all money payable to him hereunder is free from obligation to any other person for services rendered, or supposed to have been rendered, in the procurement of this contract. He further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the United States, and that the United States may retain to its own use from any sums due or to become due thereunder an amount equal to any brokerage, commission or percentage so paid, or agreed to be paid.

Compensation for Trips

No compensation will be allowed for trips not performed. However, pro rata pay will be allowed for the airline distance between stated points on the route traversed in a partially completed trip, if no delay in the mails over train or boat service has resulted.

Deductions from pay will be made for suffering the mails to become wet, injured or destroyed; or when a grade of service is rendered inferior to that stipulated in the contract; and for the loss of or depredation upon the mails in the custody of the contractor or his agent, provided the loss is occasioned by their fault.

The Postmaster General may annul the contract or impose forfeitures, in his discretion, for repeated failures or for failure to perform service according to contract; for violating the Postal Laws and Regulations; for disobeying instructions of the Post Office Department; for subletting service without the consent of the Postmaster General, or assigning or transferring the contract; for combining to prevent others from bidding for the performance of postal service, and such annulment shall not impair the right of the Department to claim damages from the contractor and his sureties.

Assignments of contracts or of interests in contracts are forbidden by law, and consequently cannot be allowed. Neither can bids nor interest in bids be transferred or assigned to other parties. Bidders will therefore take notice that they will be expected to provide the service awarded to them through the whole contract term.

Contractors under this advertisement may be permitted to sublet service to acceptable persons, by permission of the Postmaster General, at not less than the contract rate of pay.

When a bid is signed by an incorporated company, it should

be accompanied by evidence of the authority of the person signing the bid so to sign on behalf of the company. Such evidence may be a certified copy of the proceedings pursuant to which the person was elected or appointed an officer or agent of the company and that part of the by-laws showing his authority as such officer or agent to sign the bid; or a certified copy of a resolution of the board of directors or stockholders conferring such authority upon him.

Bids should be for service as stated in the advertisement.

A proposal altered in any of its essential terms cannot be considered in competition with bids submitted in proper form.

There should be attached to the bond revenue stamps amounting to fifty cents, except where a premium is charged for the suretyship; in which case the amount required is one cent on each dollar of the premium.

Bids should be forwarded in time to reach the office of the Second Assistant Postmaster General not later than 4.30 p. m. of December 20, 1922. Bids received after that time will not be considered in competition with bids received within the prescribed time.

Bids should be sent in sealed envelopes, superscribed "Airplane Proposal" and addressed to the "Second Assistant Postmaster General, Washington, D. C."

Odyssey of the Sampaio Correia II.

The H16 flying boat Sampaio Correia II, pilot Walter Hinton, which was subbstituted for the original ship of this name after the latter had been wrecked in the Windward Passage, off Cuba, by pancaking into the sea in the growing darkness, is making slow progress in winging its way toward Rio de Janeiro.

On Oct. 7 the Sampaio Correia II flew from Port-au-Prince, Haiti, to Santo Domingo, D. R., and on the following day from there to San Juan, Porto Rico. On Oct. 11 she arrived at Pointe-a-Pitre, Guadeloupe, and on Oct. 12 at Fort-de-France, Martinique. On Oct. 15 her arrival was reported at Port of Spain, Trinidad, but there she was laid up for over a month owing to a damaged propeller, which had been cracked while flying through a tropical rainstorm. As no spare propeller was carried on board, the aviators had to wait until a new stick could be secured from the United States.

On Nov. 20 at 10.30 a. m. the boat left Port of Spain, heading for Georgetown, British Guiana, its first port of call on the South American Continent. She landed at 4.50 p. m. in the Essequibo River, just off Suddie, some 25 miles from Georgetown, in order to replenish her oil supply. The distance flown that day was 310 miles. On the following day the Sampaio Correia II reached Georgetown, whence she hopped off on Nov. 24 for Paramaribo, Dutch Guiana, arriving there after a wearying performance. After bucking a strong easterly wind for four hours, the fuel pump of one of the engines went out of commission and a landing had to be made in the mouth of the Surinam river. The pilot had just sighted Paramaribo when this happened. By using the hand pump, and flying low when the rebellious engine would turn over, and taxiing with the remaining engine when it would not, the boat finally arrived at Paramaribo custom house at 3.45 p. m. The total time in the air, for the 192 miles distance was 4 hr. 13 min., and the total elapsed time 6¾ hr.

New Type of Altimeter

It is very important for the pilot of a balloon to know when he is rising or falling, and this is usually hard to determine until considerable distance has been covered. Barometers and other means of measuring altitude will not show small changes of altitude, and the usual types of rise and fall indicators are relatively insensitive. It may thus happen that a balloon starts to rise or fall and before the pilot discovers the fact he has gone a considerable distance and attained a high velocity of ascent or descent. It is then necessary to let out a lot of gas or throw overboard a lot of ballast in order to stop the motion, whereas, if it had been discovered sooner less gas or ballast would have been required.

A new rise and fall indicator now being developed by the Bureau of Standards is expected to overcome this difficulty by giving the pilot a much more accurate method of determining his rate of rise or fall.

A sylphon chamber is provided which can expand or contract a great deal with a very slight change of air pressure. Its motion is magnified until a change of altitude of thirty feet is plainly visible, no matter how slowly it may occur. This chamber is normally closed to the atmosphere, and thus records the difference between the pressure outside and the pressure at which it was last opened. When it reaches the limit of its motion in either direction an electric contact is closed, and a valve is opened connecting the chamber to the atmosphere and restoring it to zero.

The pointer therefore moves to the right or left, its rate of motion depending on the speed of rise or fall, and when it reaches the end of its motion it jumps back to zero and starts again.

A Flight to the Arctic

A hunting trip to the Arctic Circle is to be made next spring by six wealthy manufacturers and sportsmen in a flying boat now being constructed in Keyport, N. J., by the Aeromarine Airways, Inc., by order of I. M. Uppercu, President of the Cadillac Motor Car Co., who owns the Aeromarine company. He will take as his guests Howard E. Coffin, president of the National Aeronautic Association; Harold H. Emmons, president of the Detroit Chamber of Commerce; Dr. James W. Inches, Police Commissioner of Detroit; William E. Metzger, president of the Detroit Athletic Club, and Charles F. Redden, president of the Aeromarine Airways.

The party will follow the Hudson River and the Canadian lakes and rivers to James Bay and then to Hudson's Bay, where they will establish headquarters and go after polar bears and walrus. They expect to make the trip to Hudson's Bay in three days by air, whereas an overland trip would require weeks.

An official or experienced hunter of the Hudson Bay Co. also will go along as guide, and the pilots will be men used to flying in sparsely inhabited parts of the country.

Because a water route will be followed all the way the flying boat will be able to make a landing at any time. Members of the party also will investigate the possibilities of mineral development in the north, which are believed to be large. A

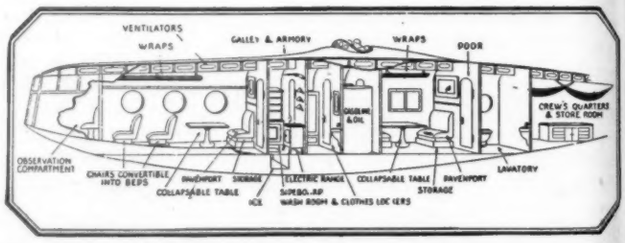


Diagram showing internal arrangement of Aeromarine flying boat now under construction for a voyage to Hudson's Bay

photographer and moving picture operator also will be in the party. There will be two pilots and a bowman, as he is called, who will be the crew and steward both of the boat.

The boat will closely resemble the F5L passenger flying boats used by the Aeromarine Airways. The hull will be 50 ft. long and the wing spread 104 ft. It will be driven by two 400 hp. Liberty motors at a speed of 100 m.p.h. It will weigh seven and one-half tons.

The observation compartment is in the bow and is enclosed. It contains chairs convertible into beds, a collapsible table and a davenport. Back of that is the gun-room, which also holds an electric range. Then comes the wash-room and clothes locker. The gasoline and oil tanks are in the center, and behind them a room containing another davenport and room for stores. A door from that leads to the lavatory and the crew's quarters. The boat will also carry radio apparatus.

Aviation in Soviet Russia

Recent Information on the Organization of the Red Air Fleet

We have recently received from Moscow, Russia, six issues of the "Air Fleet Messenger" which is an official publication of the Russian Soviet Republic.

It is extremely curious to glance through the pages of this well printed publication. As a technical magazine the "Messenger" appears to have very little value for us. Outside of a short article on formation flying for bombing purposes, another one pointing out the insufficiences of military aviation, and a series of notes of flight instruction, all the technical news presented are translations or abstracts of American, British, French and German papers. These translations and abstracts are extremely well done, however, showing that competent men are behind the "Messenger".

The spirit of the magazine is highly warlike, which may be understood in view of the fact that the issues under review date back to the time of the war with Poland. The necessity for strength in the air is greatly emphasized. Military news from various quarters of the republic fill the bulk of the pages.

An extremely ambitious program seems to be in view, involving the creation of technical and flying schools, schools for airplane mechanics, experimental fields, army air stations, aerial ordnance, etc. At the present, or rather a year ago, very poor equipment seems to be available. Out of date Caudron and Nieuport machines are chiefly used by the Red Air Fleet, and the need for repair and re-equipment is stressed in each number.

It would seem that the Soviet military authorities are careful students of aeronautics in general, and that they hold ambitious views concerning aerial development in Russia. Additional information, obtained from Italian sources, tends to show that the equipment of the Soviet air force is gradually being modernized. About 100 Ansaldo single-seater and two-seater machines have recently been delivered at Moscow by Italian pilots. The chief Russian air force centers together with the units stationed on them is given by an Italian observer as follows:

Moscow—3 obs. sqds., 9 bomb. sqds., 1 air park.
Smolensk—4 obs. sqds., 1 air park.
Podosinsk—4 obs. sqds., 1 bomb. sqd., 1 air park.
Petrograd—4 seapl. sqds., 2 bomb. sqds., 1 air park.
Rostoff—2 seapl. sqds, 1 bomb. sqd., 1 air park.
Sebastopol—5 obs. sqds., 3 bomb. sqds., 1 ranging sqd., 1 air park.

To this total of thirty-nine squadrons should be added thirty-one squadrons (observation and bombardment) stationed in the Ukraine and in Asiatic Russia, namely at Tambof, Kief, Kazan, Samara, Orlof, Omsk and Tashkent. The total air force of Soviet Russia would thus comprise seventy squadrons, but it should be noted that owing to the lack of new equipment and inadequate repair facilities single squadrons often have not more than two or three machines in active service. Thus the twelve squadrons stationed at Moscow numbered at the time they were identified (last summer) only twenty-eight efficient machines in all, while Smolensk had eighteen machines, Petrograd fourteen, Podosinsk sixteen, Rostoff eight, and Sebastopol thirty.

Aircraft repair depots are at Smolensk (two), Petrograd, Moscow, Kazan, Samara, Orloff, Kieff, Rostoff, Omsk, Tamboff, Sebastopol and Tashkent.

Present State of the Helium Question

Cheaper Production Method Announced by Bureau of Mines

In connection with the recent loss, through fire, of the Army airship C2 there have been numerous inquiries as to the reason why this ship was not inflated with helium. The truth of the matter is that at the present time the Army and the Navy have only enough helium on hand to fill one airship of this type each. Furthermore, the C class airships were not built to use helium, which gas has a lifting power about 10 per cent less than that of hydrogen, and which, owing to its different rate of expansion and diffusion, requires a different set of valves and other gear.

Opposition to the further use of the inflammable gas in naval airships was voiced by Secretary Denby. He expressed the hope that it would be "unnecessary to send any of the big dirigibles up without helium gas" in the future. At the same time Secretary Weeks was prompted by the destruction of the C2 to make inquiry as to progress being made in army experiments with helium for inflation of lighter-than-air craft.

That this accident will not influence the carrying out of the Army's airship program is assured by Lt. Col. J. E. Fechet, Chief of the Training and War Plans Division, Air Service, who declared that the C2 proved its airworthiness and reliability in the most exacting conditions while flying over the desert, over mountains and over water and, in fact, over the most varied country and under the most varied conditions to which any airship has ever been subjected.

At the same time, in the three new ships of this type which are being built for the Air Service by the Goodyear Tire & Rubber Co. at Akron, Ohio, provision is made for the use of helium in the place of hydrogen.

"It would have been impracticable," said Lieutenant Colonel Fechet, "and undoubtedly impossible for the C2 to have made the transcontinental flight if it had been inflated with helium. On the other hand, by making the flight with a hydrogen filled airship, many valuable lessons were learned and much valuable information gained that will assist Air Service engineers in designing and constructing helium airships in the future.

"This country is exceedingly fortunate in having the only known supply of helium gas in the world. The gas is being extracted and sorted by plants operated by the Bureau of Mines from funds supplied in equal amount by the War and Navy Departments. It is not deemed wise, because of the limited amount of helium available and the high cost of the gas, to use it until airships especially designed are on hand. The first of the new helium-filled ships is to be delivered about Jan. 1, 1923."

Satisfactory operation on a laboratory scale of a simplified and much cheaper method of recovering helium from natural gas is reported through the American Chemical Society by H. Foster Main, director of the Bureau of Mines. In the test made within the last month at the cryogenic laboratory in the Interior Department Building, helium was recovered in one operation in sufficient purity to use in balloons and airships.

"This development," says Director Bain, "indicates that very soon the cost of the commercial production of helium for lighter-than-air craft will be greatly reduced."

Chicago-Seattle Air Mail Wanted

Chambers of Commerce in nearly every community between Chicago and Seattle are working hard to secure an air mail service between the two cities.

"Who's Who in American Aeronautics"

(Copyright, 1921, by The Gardner, Moffat Co., Inc.)

The biographical sketches of men who are prominent in American Aeronautics are printed periodically in AVIATION. The first series have been published in a more durable form, and revised issues will be published from time to time to take care of the frequent changes in station of Army and Navy officers, and such other changes as may occur. As errors and omissions are liable to occur in a compilation of this character, interested parties are requested to notify "Who's Who" Editor of the necessary corrections so the record may be kept up to date.

Emory Scott Land

LAND, EMORY SCOTT, Commander, U. S. Navy; born, Canon City, Colo., Jan. 9, 1879; son of Scott E. Land and Jennie E. Land; married, Elizabeth C. Stiles, Apr. 15, 1909.

Educated: Public Schools of Colorado, Canada and Wyoming; University of Wyoming, B.A. 1898, M.A. 1907; U. S. Naval Academy, 1902; Mass. Inst. of Tech., M.S. 1907.

Professional: Line Officer, U.S.N. 2 years, 7 months; Naval Constructor since Oct. 21, 1904; battleship construction, 1907-1914; submarine construction and design, 1914-1919; Ass't. Naval Attache, London, 1919-1921; Bureau of Aeronautics, Nov. 1921 to date.

Aeronautical Activities: Liason Officer between Navy Dept. and Air Ministry, (Great Britain) 1919-1921; Bureau of Aeronautics, Nov. 1921 to date; qualified as Naval Aviation Observer, July 1922; head of National Div., Bureau of Aeronautics, Navy Dept.

Flying Rating: Naval Aviation Observer, July 22, 1922.

War Service: Submarine design, Bureau of Construction and Repair, Apr. 6, 1917-July 1918; Staff of Admiral W. S. Sims, U. S. Navy, July 1918-Mar. 1919 London.

Honors: Victory Ribbon with star; Navy Cross; C.B.E. (Military Commander of the British Empire).

Member: New York Yacht Club; Army and Navy Club (Wash.); N.A. M. E.; British Institute of Naval Architects; Royal Aeronautical Society.

Present Occupation: Commander, Construction Corps, U. S. Navy.

Address: Bureau of Aeronautics; Navy Dept., Washington, D. C.

Carlos Werter del Plaine

DEL PLAINE, CARLOS WERTER; born, Orizaba, Mexico, Feb. 10, 1893; son of Werter A. del Plaine and Lillie J. (Parker) del Plaine; married, Frances E. Kelley, June 21, 1921.

Educated: Public Schools of Jordan Falls, Nova Scotia; Normal School, Regina, Sask.; Acadia University, Nova Scotia, 1912-1914; University of Minnesota, B.Sc. 1921, C.E. 1922.

Professional: School Teacher, Alberta and Sask., 1910-1912; Instrumentman, Chicago, Milwaukee, and St. Paul R. R., 1915-1920; Class Assistant, Civil Engineering Dept., University of Minnesota, 1920-1922.

Aeronautical Activities: Joined Royal Flying Corps, England; Jan. 1918, sent to Egypt, Royal Air Force, Feb. 1918; returned to England, Jan. 1919.

Flying Rating: 2nd Lieut. Royal Air Force.

War Service: Sapper, Sask. Rly. Construction Co., Feb. 1917; Corporal, 7th C.R.T., England, Mar. 1917; Sergeant, Apr. 1917; transferred to R.F.C., Jan. 1918

Honors: British Military Medal, Aug. 1917.

Member: University of Minnesota Aero Club.

Present Occupation: Field Agent, League of Minnesota Municipalities.

Address: Library Bldg., University of Minnesota, Minneapolis, Minn.; home, 315 Fourth St. S.E., Minneapolis, Minn.

John Burlin Johnson

JOHNSON, JOHN BURLIN, Mechanical Engineer; born, Olean, N. Y., May 31, 1890; son of John August Johnson and Emily Amanda Johnson.

Educated: Olean High School; Cornell University, M.E., June 1912.

Professional: Special Engineer, New York Central Railroad, 1916; Aeronautical Inspector and Engineer with Army Air Service, 1916 to date.

Aeronautical Activities: Chief Inspector, Bureau of Standards, 1916-1917; Aeronautical Engineer, Bureau of Standards, Aircraft Production, 1918-1919; Assistant Chief, Material Section, McCook Field, 1920; Acting Chief, Material Section, McCook Field, 1921 to date.

Member: American Society of Mechanical Engineers; American Society of Testing Materials.

Present Occupation: Acting Chief, Material Section, Engineering Division.

Address: McCook Field, Dayton, Ohio; home, 311 Salem Ave., Dayton, Ohio.

Arthur Halsted

HALSTED, ARTHUR, Electrical and Aeronautical Engineer; born, Austin, Tex., Apr. 30, 1882; son of George Bruce Halsted and Margaret (Swearingen) Halsted; married, Flora Pierce, Oct. 8, 1917.

Educated: Public schools of Austin, Tex.; Kenyon College; Intercollegiate Prizeman, BK.; Case School of Applied Science, B.S. in Elec. Eng.

Professional: With Consulting Engineers; Electrical Contractor; Electrical Engineering, Panama Canal.

Aeronautical Activities: Cadet, Princeton School of Military Aeronautics, July 16, 1917; sailed for Europe, Oct. 9, 1917; Issoudun, France, Nov.-Dec. 1917; Foggia, Italy, Jan.-Oct. 1918; assigned to Commando di Aviazione a'Disposizione, 202nd Squadron of Italian Marines, equipped with Ca5 Caproni biplanes, as officer Pilot, Oct. 1918 until Armistice; Engineering Investigations for American Aeronautical Safety Code to date.

Flying Rating: Reserve Military Aviator; F.A.I.; Pilote Aviateur 1° grade, No. 2468; Brevetto Superiore (Caproni) MCLV.

Honors: Battle Clasp; Vittoria; Veneto.

Present Occupation: Associate Electrical Engineer, U. S. Bureau of Standards.

Address: Bureau of Standards, Washington, D. C.; home, Hunter Ave., Clarendon, Va.

William Lacy Kenly Jr.

KENLY, WILLIAM LACY, Jr., Sugar Business; born, Ft. Monroe, Va., son of William L. Kenly and Julie T. (Closson) Kenly; married, Mary S. Burdick, June 11, 1921.

Education: Friend's School, Washington, D. C.; Yale College, Ph.B. 1915.

Professional: Mechanical Engineer, American Sugar Refining Co., New York.

Aeronautical Activities: Primary flying, Mather Field, Calif., Sept. 1918; Wings, Nov. 1918; Pursuit Pilot, Pursuit Course, Rockwell Field, Calif., Nov. 1918 to Apr. 1919.

Flying Rating: Reserve Military Aviator, Nov. 1918; Flying Certificate No. 173; Division Military Aeronautics, 1919.

War Service: As above.

Member: Aero Club of America; Military Order, World War; Loyal Legion; American Legion.

Present Occupation: Sugar Refiner, American Sugar Refining Co.

Address: 117 Wall St., New York City; home, 540 Park Ave., E. Orange, N. J.

Vally Nicholas Braden

BRADEN, VALLY NICHOLAS, Rubber Business; born, Bucyrus, Ohio, Dec. 25, 1891; son of John E. Braden and Mary A. (Snyder) Braden; married, Mary L. Norton, Sept. 9, 1916.

Educated: Graded Schools; Bucyrus High School; Ohio State University, M.E. 1917.

Professional: Toledo & Ohio Central R. R., 1910-1912; The Goodyear Tire & Rubber Co., 1917 to date.

Aeronautical Activities: Manager of Factory, Aeronautical Dept., Nov. 1, 1920 to date.

Member: Akron University Club.

Present Occupation: Mgr. Factory, Aeronautical Dept., The Goodyear Tire & Rubber Co.

Address: Akron, Ohio; home, 1042 W. Market St., Akron, Ohio.

John Durant Larkin, Jr.

LARKIN, Jr., JOHN DURANT, Mail Order Business; born, Buffalo, N. Y., Oct. 28, 1877; son of John D. Larkin and Frances (Hubbard) Larkin; married, Edna Crate, Feb. 12, 1901.

Educated: Public schools of Buffalo; Lafayette College.

Professional: Manager, Larkin Co., Inc.

Aeronautical Activities: Started ballooning in 1904; ballooning and flying as a sportsman.

Member: Pres., Aero Club of Buffalo; Gov., National Aeronautic Association.

Present Occupation: Larkin Co., Inc.

Address: 680 Seneca St., Buffalo, N. Y.; home, 65 Lincoln Parkway, Buffalo, N. Y.

Charles Addison Pursley

PURSLEY, CHARLES ADDISON, Captain, Air Service; born, Dougherty, Okla., Aug. 4, 1889; son of James T. Pursley and Anna (Kirkpatrick) Pursley; married, Thelma Duke Freeman, Jan. 18, 1921.

Educated: Public Schools of Okla.; Oregon Conservatory of Music; Columbia Junior College, Milton, Ore.

Professional: Commissioned 2nd Lt. Infantry, Aug. 14, 1917; 1st Lt. Infantry, Dec. 31, 1917; 1st Lt. Air Service, Mar. 25, 1918; 1st Lt. Air Service (Regular Army) July 1, 1920; Captain, Air Service, July 1, 1920.

Aeronautical Activities: School for Aerial Observers, Fort Sill, Dec. 5, 1917- Mar. 9, 1918; flying status Dec. 5, 1917; Aerial Gunnery School, Selfridge Field, May 1918-June 1918; 2nd Aviation Instruction Center, Tours, France, Aug. 2, 1918-Sept. 20, 1918; 50th Aero Squadron, Meuse-Argonne, Sept. 26, 1918-Nov. 6, 1918; Border Patrol, 8th Aero Squadron, Nov. 2, 1919-Mar. 19, 1921; Commanding Officer, 8th Aero Squadron, Sept. 21, 1920-Mar. 1921; Primary Flying School, Carlstrom Field, Apr. 1, 1921-Aug. 31, 1921; Advanced School (Bombardment) Kelly Field, Sept. 6, 1921-Dec. 22, 1921; Executive Officer, 103rd Div., Air Service, (Organized Reserves) detailed Feb. 23, 1922 to date.

Flying Rating: Airplane Observer, June 22, 1918; Airplane Pilot (Bombardment) Dec. 22, 1921.

War Service: Continuous from May 9, 1917-Aug. 15, 1919.

Present Occupation: Captain, Air Service, U. S. Army.

Address: 210 Federal Bldg., Colorado Springs, Colo.; home, San Benito, Tex.

John Davenport Crehore

CREHORE, JOHN DAVENPORT, Promotion; born, Pottstown, Pa., May 14, 1891; son of William Wms. Crehore and Anna (Ballard) Crehore.

Educated: Grammar and High Schools of Elizabeth, Metuchen and Perth Amboy, N. J.

Professional: Guaranty Trust Co. of New York, 1910-1916; U. S. Army, Nov. 1917-Sept. 1919; National City Bank of New York, Oct. 1919-Dec. 1921; in business for self since Dec. 1921.

Aeronautical Activities: Flying Cadet, Nov. 30, 1917-May 28, 1918; 2nd Lieut. A.S. (A). May 29, 1918-Sept. 5, 1919; A.E.F., Oct. 5, 1918-Aug. 12, 1919; Observation pilot.

Flying Rating: Reserve Military Aviator, May 29, 1918.

War Service: A.E.F. from Oct. 5, 1918 to Aug. 12, 1919.

Member: Aero Club of America.

Present Occupation: Promoter.

Address: 110 William St., New York City; home, 114 East 39th St., New York City.

Jacob W. S. Wuest

WUEST, JACOB W. S., Major, Air Service; born, Cincinnati, O., June 24, 1880; son of Charles Wuest, Sr., and Julia (Rapp) Wuest; married, Helen E. Strong, May 27, 1916.

Educated: Cincinnati Public Schools; Woodward High Schools; U. S. Military Academy.

Professional History: Commissioned 2nd Lieut. 30th Infantry, June 11, 1903; 1st Lieut. 25th Infantry 1909; Captain of Infantry 1916; Major of Infantry, 1917; Major, Air Service 1917; Lieut. Col. Air Service, 1918; Major Air Service, 1920.

Aeronautical Activities: Transferred to Air Service, Dec. 1917 at Kelly Field, Waco, Tex., and Omaha Balloon School, 1918; Commanded Omaha Balloon School, Sept. 1918 to Aug. 1920.

Flying Rating: Free Balloon Pilot, July 1918; Aerial Observer, July 1918; Junior Military Aeronaut, Aug. 1918.

War Service: Served throughout the World War.

Member: Army and Navy Club.

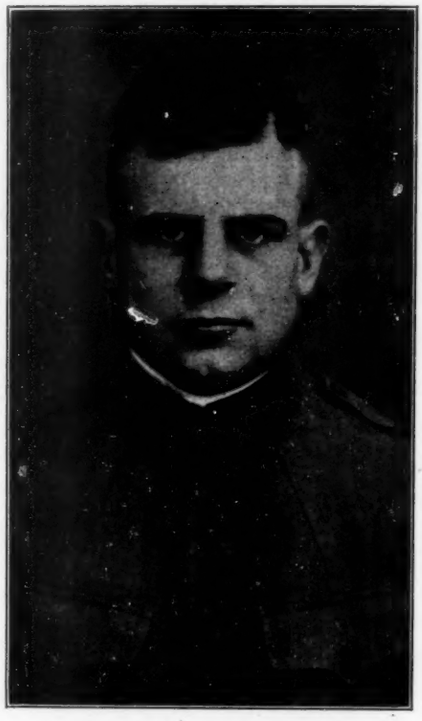
Present Occupation: Student, Army War College.

Address: Army War College, Washington, D. C.; home, Wyoming Apts., Washington, D. C.

The Story of a Great Flight

Sept. 5, last, marked the successful completion of a remarkable one-stop airplane flight made by Lieut. J. H. Doolittle, from the Atlantic to the Pacific Coast, establishing a record of 21 hr. 20 min. actual flying time, and 22 hr. 35 min. elapsed time for the entire flight.

Just a little over ten years ago the first airplane flight across the United States was successfully accomplished by Calbraith P. Rodgers who, flying a Model B Wright airplane, started from New York Sept. 17, 1911, and finished at Pasadena, Calif., Nov. 5, 1911, his longest single flight being 133 miles. A month or so later Robert G. Fowler started on a flight across the continent with a view to bettering Rodgers' record. He was 122 days on the way and landed at Jacksonville, Fla., on Feb. 17, 1912.



First Lieut. James H. Doolittle, A.S., transcontinental flier

On Sept. 4,, at 6.00 p. m. Lieutenant Doolitte left Jacksonville and made a forty-minute hop to Pablo Beach, the starting point on the Florida East Coast. Final preparations were made, and when he climbed into his ship for the long night-flight, the moon was full, the air clear, and conditions appeared to be favorable. At 9.05 p. m. Central Time Doolittle took off across the beach on his long flight. Crossing Florida and following the Central Coast Line he was able to pick up various familiar landmarks and lights from time to time. The flying conditions between Pablo Beach and New Orleans, La,. were all that could be desired, but between New Orleans and Galveston, Tex., a local thunder shower was encountered which caused delay.

With the breaking of day he was able to pick up familiar landmarks and knew that he was not far from Kelly Field, Tex. During the night conditions had changed somewhat, and instead of the usual clear Texas skies low cloud banks were everywhere, forcing him to fly at a low altitude.

As dawn broke over San Antonio several ships took the air to look for him in the low clouds. Among the hundreds present, all the aviation activities in this district were represented—from the Air Office, 8th Corps Area to his brother officers from neighboring fields.

Lieut. Doolittle glided into Kelly Field at 7.05 a. m., Sept. 5. As soon as the motor was cut, a picked outfit of enlisted men hopped to work and while Lieutenant Doolittle was getting a much needed breakfast and a chance to stretch his legs, they gassed, oiled and watered the plane. The ship was completely gone over, and when the Lieutenant took the stick one hour and fifteen minutes later everything was in order.

His time from Pablo Beach, Fla., to Kelly Field, Tex., had not been as good as expected, due to adverse winds and low clouds, but was well within the average. He made the trip in 10 hr. 5 min., only about one hour behind his best previous time. At 8.20 a. m. the ship again took the air accompanied by planes from the field as far as Medina Lake, where part of them came back, although one continued on as far as El Paso.

The trip from Kelly Field to San Diego, Calif., was uneventful once the low pressure area about Kelly Field was passed, although from time to time it was necessary to pass through scattering cloud banks.

Eleven hours and fifteen minutes after leaving Kelly Field, Tex., Doolittle 'set her down' at Rockwell Field, San Diego, Calif., thereby completing the first one-stop trip from coast to coast.

Book Reviews

Mon Tour d'Europe. Par Harry Fox. 32 pp.. ill'd. (*Les Ailes*, 17 Boul. des Batignolles, Paris, France.)

This is the story of a private flying trip which the author made with a friend in Europe last summer. The trip took them from London to Paris, Brussels, Amsterdam, Bremen, thence to Scandinavia, then back to Germany, from there to Poland, Czechoslovakia, Austria, Italy, and return to London by way of France. The total distance was approximately 4500 miles, which were covered in 56½ hr. flying time.

The machine used for this trip, which was piloted by Allan J. Cobham, an English pilot, was a DH9C cabin biplane equipped with a 240 hp. Siddeley Puma engine. It speaks well for pilot and ship that the long trip was completed without the slightest incident, although the landing fields encountered were not always of the best.

Zeppelin—The Story of a Great Achievement. By Harry Vissering, Chicago. 118 pp. ill'd.

Mr. Vissering has filled a long felt want in aeronautical literature by offering the public a book in which the high lights of Count Zeppelin's great achievement are related in easily readable style and within the compass of small size.

The book is excellently illustrated with 59 fullpage illustrations showing the gradual development of the Zeppelin airship from its earliest beginnings, the various Maybach engines, the Zeppelin plants and hangars, and also the heavier-than-air craft produced by the Dornier branch of the Zeppelin Co.

World Metric Standardization—An Urgent Issue. Compiled by Audrey Drury. 524 pp. (World Metric Standardization Council, 681 Market St., San Francisco.)

This book deals with an advance which is of immediate timely importance. It deals with the "master standards" of the world, upon which all the world is rapidly standardizing. These standards are the three metric units—meter, liter, gram. It urges that the units of weights and measures of the United States of America, and of the British Commonwealths, be brought into accord with these invariable standards. Once this advance is achieved all the world will be upon the uniform metric basis.

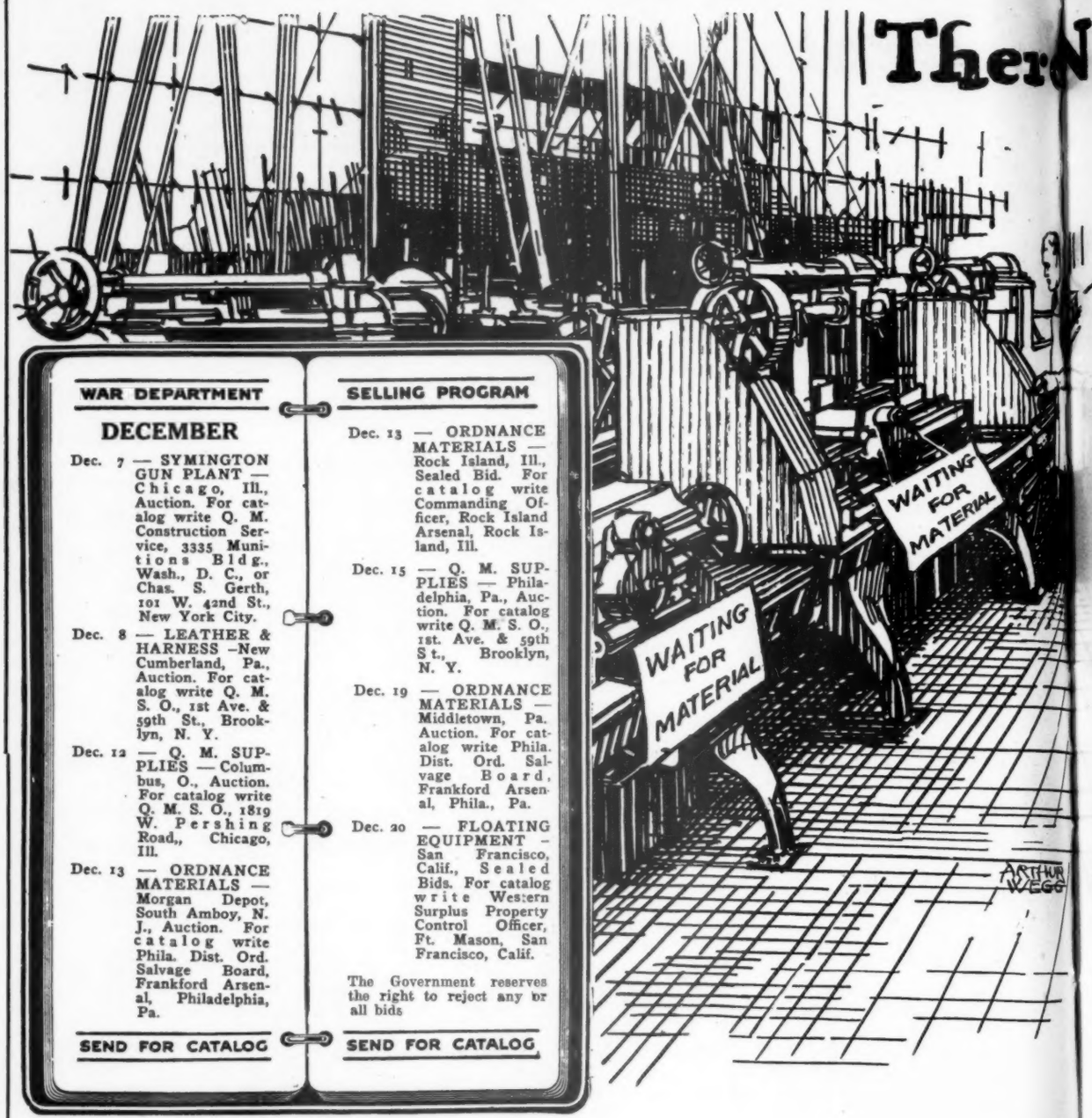
If we consider that in 1921 more humans went over to the metric units for future transactions than now use the diverse 'British' units in all the world, Japan and Russia in that year confirming their adoption of the decimal metric system, we will better appreciate the extent of the metric standardization movement which is daily gaining adherents.

Traite Pratique de Navigation Aerienne. Par A. B. Duval et L. Hebrard. 60 pp., ill'd. (Gauthiers Villars et Cie. 55 quai des Grands-Augustins, Paris, France.)

This textbook of air navigation, the first of its kind, answers the purpose of familiarizing pilots of aircraft with the most recent methods of navigating the air by means of instruments. Over one hundred illustrations, half of which illustrate air navigation instruments, greatly enhance the value of the work.

The book is divided into six chapters, as follows: I. General Rules for Air Navigation; II. The Compass; III. Navigation by Dead Reckoning; IV. Navigation by Observation; V. Air Navigation Instruments; VI. Practical Application of Air Navigation.

The importance of applying to aviation the principles of navigation by means of instruments is emphasized in the foreword, which was contributed by M. Laurent-Eynac, French Under-Secretary of Aviation.



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WAR DEPARTMENT

DECEMBER

Dec. 7 — SYMINGTON GUN PLANT — Chicago, Ill., Auction. For catalog write Q. M. Construction Service, 3335 Munitions Bldg., Wash., D. C., or Chas. S. Gerth, 101 W. 42nd St., New York City.

Dec. 8 — LEATHER & HARNESS —New Cumberland, Pa., Auction. For catalog write Q. M. S. O., 1st Ave. & 59th St., Brooklyn, N. Y.

Dec. 12 — Q. M. SUPPLIES — Columbus, O., Auction. For catalog write Q. M. S. O., 1819 W. Pershing Road,, Chicago, Ill.

Dec. 13 — ORDNANCE MATERIALS — Morgan Depot, South Amboy, N. J., Auction. For catalog write Phila. Dist. Ord. Salvage Board, Frankford Arsenal, Philadelphia, Pa.

SEND FOR CATALOG

SELLING PROGRAM

Dec. 13 — ORDNANCE MATERIALS — Rock Island, Ill., Sealed Bid. For catalog write Commanding Officer, Rock Island Arsenal, Rock Island, Ill.

Dec. 15 — Q. M. SUPPLIES — Philadelphia, Pa., Auction. For catalog write Q. M. S. O., 1st. Ave. & 59th St., Brooklyn, N. Y.

Dec. 19 — ORDNANCE MATERIALS — Middletown, Pa. Auction. For catalog write Phila. Dist. Ord. Salvage Board, Frankford Arsenal, Phila., Pa.

Dec. 20 — FLOATING EQUIPMENT — San Francisco, Calif., Sealed Bids. For catalog write Western Surplus Property Control Officer, Ft. Mason, San Francisco, Calif.

The Government reserves the right to reject any or all bids

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ARTMENT

Why the Mooring Mast

Editor, AVIATION:—

I was rather interested in your remarks under the heading as above published in your number dated Aug. 21, and must frankly admit that I disagree with you entirely on this subject. Mast mooring in my opinion is the only logical system for mooring airships, as it provides the following very important advantages: (1) Cheapness; (2) Minimum ground staff; (3) Minimum strain on the ship itself; (4) Ease in which ship can be ballasted up and re-fueled; (5) Can be erected anywhere without any specially prepared ground; and (6) Ship can be moored thus with very little buoyancy. In fact the bows can actually be heavy.

Discussing as follows each item as enumerated above and comparing them as applied to ground mooring, the advantages lie very highly on the side of mast mooring;

(1) Preparation of the ground and the laying of sub-surface rails which would be liable to become choked with dirt. The maintenance of such a track would be expensive.

(2) In order to ground the ship and position her over the trolleys on the mooring platform, which I assume would be used in conjunction with fixed ground mooring, a staff of probably 400 men would be required. This in itself is a serious disadvantage over mast mooring which can be accomplished with a ground staff of not more than six.

(3) That the main stresses that come on the ship when moored are considerably lightened by mast mooring is obvious. The forces acting on the ship at the mooring masts are as follows: (a) The vertical lifting force composed of the static lift due to the buoyancy of the ship and the dynamic lift due to the angle at which the ship is pitched; (b) The backward force caused by the wind pressure on the hull and cars.

With reference to item (a) these forces are not serious because of the greater freedom of movement which mast mooring provides. In ground mooring this is not possible. You have friction of the trolleys, in lateral movement. The vertical lifting forces are still in existence, but are resisted by ground ties from the trolleys to some structural part of the ship. Therefore, these stresses are taken on the ship, which even in moderate winds can become heavy.

I cannot therefore agree with your remarks when you state that there is little vertical component in the wind near the ground. It is at this point near the ground that the air becomes chiefly disturbed.

(4) The question of ballasting up and re-fueling presents a difficulty in ground mooring unless it could be done through the nose of the ship as in mast mooring. This would necessitate a tower of considerable height erected in the center of the mooring platform. Therefore in this respect no advantage is seen over mast mooring.

It would be well to mention the difficulty that might be met in keeping ship correctly trimmed while the ship is ground moored, by reason of the change in static lift due to changes in temperature that occur between day and night. If it was found advantageous to leave the ship light while moored, constant change of ballasting would be necessary. A rapid means of accomplishing this is therefore very important. If, however, it was found reasonably safe to keep the ship slightly heavy so that under no condition of temperature change, could the ship become light, then it would be probably economical to keep her in that state.

(5) No comments necessary.

(6) Best condition under ground mooring would probably be to keep ship heavy. (See item 4).

You will see that I am an advocate for the mast mooring. In connection with ground mooring, the most satisfactory scheme that I have seen described is that of Mr. Ullman's. But his method does not get over the difficulty of positioning which means a large ground staff.

S. H. PHILLIPS
W. Philadelphia, Pa.

Farman A2 Observation Airplane

The French government has just contracted for a considerable number of these machines for use in the Army as a reconnaissance machine.

The A-2 is very easy to fly and may be landed on an ordinary emergency field without danger. At the same time, it is extremely maneuverable for combat work and is of particularly robust construction in all its parts, especially the under-carriage. As much as possible the parts are interchangeable and repairs are very easily made.

Equipment: Machines are equipped to carry a pilot and observer. They carry dual control. Visibility is perfect in all directions. It is possible to vary the equipment carried, such as cameras, wireless apparatus, signaling machines, fire arms, etc.

Great difficulties were over-come in producing this machine, as it was necessary in order to conform with the program

The Farman A2 two-seater observation-combat airplane of the French Air Service

imposed, to attain performances of considerable efficiency at the same time maintaining sufficient solidity.

It is usual to start from existing machines and to increase their weight and power until the necessary performance is attained. But the continued increasing of power and weight results in a much greater difficulty of piloting and maneuvering and furthermore, of two machines with the same ceiling and the same speed, the lighest has always an indisputable superiority over the heavier one. The Farman engineers considered that the only acceptable solution to this problem would be the most minute study of construction in order to arrive at a minimum weight and the choice of a motor light enough to avoid losing the advantages gained in the constructive details of the airplane itself.

Success crowned their efforts and after more than a year of study and research, they produced a machine of which the principal characteristics are as follows:—

Characteristics

Type, Single engined tractor biplane
Motor, Salmson Z9, 260 hp.
Pilot and passenger seated behind the wings
Undercarriage with jointed axle
Flexible tail-skid
Weight empty, 1960 lb.
Useful load, 1150 lb.
Lifting surface, 405 sq. ft.
Wing span. 39 ft.

The following performance figures were officially established by the Service Technique De L'Aéronautique:—

Ground speed, 120 m.p.h.
Speed at 6000 ft., 119 m.p.h.
Speed at 10,000 ft., 117½ m.p.h.
Speed at 16,000 ft., 110 m.p.h.
Climb, 6000 ft. in 7 min. 30 sec.
Climb, 10,000 ft. in 12 min. 35 sec.
Climb 16,000 ft. in 28 min. 25 sec.

These official tests were made with a useful load of 1155 lb.

An Eagle Passes

If ever a man seemed rightly named, it was that flight officer of the Navy whose life flew from him Nov. 14—Chevalier. From the time he was a boy at school, throughout the years of service he gave to an honored profession, during the trying period of fighting days overseas, and afterward when he strove to perfect in peace what must be used in war, he was just that—the chevalier. It is not necessary to have known the man; his record and the words of his shipmates, on the sea and in the air, tell the story of his life and picture the man—a chevalier without fear and without reproach.

He was decorated by the governments of Great Britain, France and the United States because he was without fear and so dared in battle as to win the praise of men and the thanks of nations. In peace he also dared; he was only a boy when he saved the lives of twenty men. In peace he continued to dare; he was the first American naval officer to land on a moving ship. Yet the things he did were not done from sheer bravado; they called for daring, but they were in the line of duty, duty which he undertook with the seriousness of a chevalier of olden days, though he smiled amid danger from out the boy's heart of him.

Whatever hazards menaced him, whether rescuing men who would drown, whether flying and fighting in France, whether venturing a test charged with death, or seeking to land his ship in an unknown field, life found him unafraid. His hands on the controls, his eyes ahead, he sailed between sky and earth, a chevalier of the air.

In war and in peace, he lived and tried and conquered and died—a gentleman unafraid. He died, we think, as an eagle would die, eyes front, wings outspread—in flight. Such men as Lieut. Comdr. Godfrey de Courcelles Chevalier exalt their uniform and their service, and their souls wing their way to their Great Commander still unafraid. Flags hang at half mast, bugles sound and rifles crash a last salute; but there must be no sadness, for an eagle passes on his upward way.—Norfolk *Ledger Dispatch.*

Aero. Eng. Soc. of M. I. T.

The Aeronautical Engineering Society of the Massachusetts Institute of Technology, which built and flew the only glider representing the United States at the International Gliding Contest in France during the past summer, held its first meeting of the term on Wednesday, Nov. 15.

Otto C. Koppen and Harry C. Karcher, members of the M.I.T. glider team, spoke concerning their experiences in taking the glider to France and flying it in the contest. This was the first opportunity for the society to hear at first hand an account of the facts from the men who actually managed the undertaking.

Prof. E. P. Warner, who toured Europe last summer making a study of aeronautics abroad, gave a talk on the gliding contest, illustrated with lantern slides and moving pictures of the French and German competitions and the M.I.T. glider in flight. He emphasized the fact that the glider was designed and built for the contest in a remarkably short length of time, and was shipped to France and the first machine in action of the fifty gliders in the competition. He pointed out also that up to the time the M.I.T. glider was put out of commission by an accident which was no fault of the machine or pilot, its total time in the air was three times as long as that of all other competitors combined.

The Aeronautical Engineering Society is holding a competition for the design of a glider, in which all M.I.T. students will be eligible to submit designs, and the winner will be awarded a suitable trophy. It has not been decided whether the society will construct another glider this year, but it hopes to continue to promote and encourage the science of gliding and soaring flight as far as possible.

Nepal, Oman and the United States

Forty countries have national laws regulating the operation of civilian aircraft and designed to decrease flying accidents due to reckless piloting, according to a survey forwarded by the Aeronautical Chamber of Commerce of America to the Department of Commerce. Twenty-six nations which ratified the International Air Convention drawn up following the Armistice, have established national legislation providing for safe and sane flying within their own borders, the Chamber finds. Fourteen other nations have various kinds of national air laws.

"Of the remaining countries on earth," says the Chamber, "those which have not yet passed air laws tending to safeguard the passengers and the lives and property of the public, include Abyssinia, Persia, Bhutan, Nepal, Oman and the United States."

The Wadsworth Bill, providing for a bureau of civil aeronautics in the Department of Commerce, passed the Senate last February. The House as yet has taken no action.

Aeromarine Opens Southern Air Route

The first airway flight of the 1922-1923 season between Key West and Havana was made Nov. 8 by the Aeromarine flying boat Santa Maria. On the initial flight, the Santa Maria carried eleven passengers, including C. F. Redden, president of the Aeromarine Airways, Inc., and Maj. B. L. Smith, general manager. On their arrival in Havana, the party received an enthusiastic reception. Prior to the reception, the president of Cuba had designated the Cuban Secretary of War, Secretary of the Navy and the Secretary of State as his representatives and after the arrival of the Santa Maria these officials, accompanied by C. B. Hurst, American Consul General in Havana, made a flight in the Santa Maria above Havana and circled Morro Castle several times.

Mr. Redden made public in Havana the fact that the Aeromarine Company plans to inaugurate a regular schedule from New York direct to Miami in the winter of 1923.

The Santa Maria is the queen ship of the Aeromarine Airways' Black Tail Fleet. During this past summer she was one of a fleet of four cabin flying boats operating between Cleveland and Detroit on a double daily schedule. At the close of the season on the Great Lakes, she was flown to New York via Lake Erie, Lake Ontario, the St. Lawrence River, Lakes Champlain and George and the Hudson River. After refueling in New York, she proceeded South via Atlantic City, Manteo and Miami to Key West. Since the Santa Maria went into commission she has flown over 50,000 miles.

The Aeromarine Co. will operate a fleet of ten 11-passenger flying boats in the South this winter. In addition to the daily service between Key West and Havana flights will be made regularly between Miami and Nassau in the Bahamas. The distance of 187 miles to Nassau is made in 2½ hr. against 20 hr. by steamer.

Maynard Benefit Meet

The Belvin Maynard Benefit Meet held at Curtiss Field, Garden City, Nov. 19, through the cooperation of the Curtiss Aeroplane & Motor Corp., the Air Service, the Air Mail Service, the Aeronautical Chamber of Commerce and members of the American Legion netted about $1,500 which will be turned over to Mrs. Maynard. The exact sum realized will not be known until the final audit of the tickets distributed for sale.

London Newspapers by Air

A total of 37.4 tons of newspapers were recently carried from London to the continent in one month—an average of more than a ton daily. Newspapers represent about one-half the total cargo of the British, French and Dutch aircraft.

ARMY AND NAVY AIR NEWS

Air Service

Air Maneuvers over Washington, D. C.—Highly instructive air maneuvers took place over Washington, D. C., on Nov. 15, when five Martin Bombers from Langley Field appeared in the sky with the intention of "destroying" the strategic points in the city. They had no sooner arrived when they were met by six fighting planes from Bolling Field, who frustrated their attempts and forced them to land at the Anacostia station.

As the five large ships circled over the city they were constantly harrassed by three SE5 pursuit planes, which maneuvered in and about the formation, firing vigorously from mythical machine guns, while a formation of three De Havilands kept vigil directly overhead. Without a doubt, if the fight were real, the guardian aviators of Washington would have emerged the victors.

Virtually all Washington looked upward and stopped in amazement as the dozen or more planes, roared overhead while many upper stories of buildings held interested spectators watching the "battle" as it progressed over the city.

A rumbling told those on the ground that the bombers were nearing their objective and a few minutes later they broke through the mist in a perfect formation. Out of the clouds like a flash came the pursuit planes and then the battle started. One little fellow dashed in and out, first attacking the leader and then swinging around on one wing for the last man in the bombing formation. The others continued to harass the comparatively slow and clumsy ships as they with difficulty made their way over the city.

Every few moments there was a thrill for those who watched below. Once it appeared that one of the scouts had dived right onto one of the bombers, and it was feared that one or both of the planes would drop down out of control; from another part of the city came another scout tearing through the air to try his hand at downing the attacking force. He apparently had been keeping a lookout for more "enemies."

The bombers, however, with much difficulty succeeded in making a complete canvas of the city, and at the end of a half hour, seeing they could do no damage, were forced to pick out the first clear landing space or suffer at the hands of the Bolling Field fliers. They landed and "surrendered" at the Anacostia station at 12 o'clock.

The bombers were commanded by Capt. Edward C. Black, and Lieutenants Acherly, Hornsby, Burrowes, Craig and Hillary were the pilots.

The defenders of Washington were Captains Streett and Oker and Lieutenants Smith Wilkins, Ramey, Baker, Beaton, Beau and Wolfe.

* * *

Crissy Field Activities—Lieut. A. G. Liggett as pilot and Private Willett R. Lufkin as observer and radio operator made an altitude flight for training purposes in conjunction with an antiaircraft battery of the Coast Artillery Corps stationed at Fort Winfield Scott. Reports from the battery commander indicate that the training problem was most successful and that he soon hoped for another problem.

Lieut. L. F. Post as pilot and Lieut. B. R. Dallas as observer, made a night flight in conjunction with a training problem of the antiaircraft batteries at Ft. Scott on Oct. 25. The pilot and his observer played tag between the many beams of the search-lights and apparently were able to dodge the gunners on the ground at will.

Second Assistant Postmaster General Paul Henderson, Superintendent of the Air Mail and Mr. Riddell, General Superintendent of Railway Mail and Judge Anderson of the Federal Court, are expected at Crissy Field in the immediate future for the purpose of inspecting the Air Mail Station here. During their stay at Crissy Field it is expected that they will be taken for a few local flights to better gain an idea of the difficulties to be encountered in this section of the country. It is expected that their flights will be made in a reconstructed DeHaviland plane of the cabin type which carries two passengers and a pilot. The plane mentioned was flown there by Pilot "Slim" Lewis of the Air Mail.

On Oct. 25 a formation of naval planes from the Pacific Fleet Air Force landed at Crissy Field to participate in the Navy Day celebration.

Among the pilots in command of Lieut. Commander N. R. McComb, were Lieutenants Smith, Wehle, Shoefell, Ericeson, Montgomery, Woodman, Fohe, Weber, and Ensigns Hasselman, Allen and Taylor. The enlisted personnel included Chief Petty Officers Stinson, Alexander and McDonough. During their stay at Crissy Field the Navy men made a number of local flights and on Navy Day sent out three formations of three planes each, one going north as far as Eureka, Calif., one to the east as far as Sacramento and vicinity and the other in a south-easterly direction through the valley, returning to Crissy Field upon completion of these flights.

On Oct. 28 the Navy fliers returned to their base at San Pablo, Calif.

* * *

Army Orders—Sec. Lieut. Gail Clifford Oakes, A.S., is honorably discharged from the Army, Walter Reed Hospital.

First Lieut. Carl F. Greebe, A.S., from March Field to Crissy Field.

First Lieut. Gerald E. Grimes, A.S., has been retired as incapacitated for further service.

First Lieut. Clarence P. Talbot, A.S., from R.O.T.C. University of Illinois, to 15th Observation Sq., Chanute Field.

First Lieut. Cecil E. Archer, A.S., from McCook Field to Hawaiian Dept.

First Lieut. Arthur W. Vanaman, A.S., from Rockwell Field to Philippine Dept.

First Lieut. Earl S. Hoag, A.S., from Baltimore, Md., to Organized Reserves, Third Corps Area, Pittsburgh, Pa.

Sec. Lieut. Paschal Neilson Strong, jr., A.S., transferred to Corps of Engineers.

First Lieut. Gerald E. Grimes, A.S., from Walter Reed Hospital to Langley Field.

Maj. Guy L. Gearhart, A.S., from Farmingdale, L. I., to Langley Field.

First Lieut. Frank Kehoe, jr., A.S., Scott Field, to Balloon and Airship School as student officer.

Capt. Roger S. McCullogh, A.S., from Balloon and Airship School to Scott Field air intermediate depot.

Maj. Leo G. Hefferman, A.S., from Kelly Field to command 12th Aero Sqd. at Ft. Bliss, Tex.

Capt. Lowell H. Smith, A.S., from Crissy Field to Rockwell Field.

First Lieut. Alfred A. Mariner, A.S., from Rockwell Field to Crissy Field.

Capt. Alfred D. Smith, A.S., to report to retiring board, San Francisco.

First Lieut. Russell W. Goodyear, Q.C., from Scott Field to Fort Sill, Okla.

Capt. Walter J. Reed, A.S., from Langley Field to Lakehurst naval air station as army observer with rigid airship ZR1.

Maj. Arthur R. Christie, A.S., on temp. duty with Mil. Intell. Div., Washington, D. C.; thence to Langley Field.

First Lieut. Harlan Thurston McCormick, Cav., Kelly Field, to Air Service, Oct. 21, 1922.

First Lieut. Longhorne W. Motley, A.S., to 83d Div., Org. Res., Fifth Corps Area.

General Pershing Inspects Kelly Field—The 43rd Squadron (School) did some exceptionally good flying for General Pershing and his Staff, who were at Kelly Field recently for the purpose of making an inspection of the troops and flying. Two 5-ship formations of SE5's circled around the field for about 10 minutes, passed in review, and then broke, performing all sorts of acrobatics around the reviewing stand. Pilots of the 90th Squadron (Attack), the 13th Squadron (Attack) and the 8th Squadron (Attack) also participated in the aerial review. The 13th Squadron sent up four XB1A's for the event.

• • •

Air Service Cooperates in County Fair—Cumberland County, that body of land lying around Fayetteville, N. C., and Fort Bragg, staged between the dates of Oct. 23 and 26 one of the greatest Fairs in her history. Fort Bragg and Pope Field did everything possible to cooperate with Fayetteville to make the event a success. Pope Field displayed about everything used on a flying field, and an experienced mechanic was stationed with the exhibit to answer all questions. Other features such as aerial maneuvers, stunting and formation flying, contributed to the success of the fair

• • •

Border to Border Non-Stop Flight Postponed—Lieut. Leland S. Andrews, who had contemplated making a non-stop flight from the Mexican to the Canadian border in the plane piloted by Lieutenant Doolittle on his recent transcontinental flight, was recently discharged from the Base Hospital at Fort Sam Houston, Tex. He is very much disappointed in having to postpone his border to border trip, but must bow to the will of the Flight Surgeon, who is of the opinion that Lieutenant Andrews' physical condition is not such as to warrant his making the attempt just at this time.

• • •

Maryland Air Service Encampment—Members of the 104th Squadron, Maryland National Guard, held their first annual encampment at Langley Field, Va., for a period of two weeks last summer. Fifteen officers and 83 enlisted men attended, and the camp was voted a huge success by everyone, including the Regular Army officers who supervised it.

A remarkable feature of the camp was the fact that every available enlisted man turned out for the fifteen day period, and they all seemed to enjoy every day of it. This will no doubt surprise those men who claim that National Guard Air Service is not feasible on account of the difficulty experienced in keeping the enlisted personnel interested. The men were given excellent instruction under the efficient tutelage of members of the 50th Squadron, the Regular Army outfit to which the entire 104th was attached for training. Each branch of the 104th, such as the Radio, Engineering, Supply, etc., functioned in its regular capacity side by side with the corresponding branch of the 50th.

Instead of taking their "Jennies" to Langley Field, which would have been like taking a ham sandwich to a banquet, the Maryland outfit decided that they could get a good deal more out of the encampment if they were allowed to fly service type of ships, and authority was obtained to fly the DH's and SE5's at Langley. This served to greatly boost the morale of the squadron, as the pilots had been flying "Jennies" for over a year and they, as well as the mechanics, were "fed up" on them and were anxious to work on service types. It was an experiment that the Army was a little doubtful about at first but one which turned out to be wonderfully successful, for within the very first week of camp every pilot was flying solo on DH's, and the remarkable part of it was that only two or three of them had flown them before. Before the end of the second week half of the pilots were flying SE5's.

Thus it is shown that, in a short period of time, National Guard pilots can be trained to fly service ships. And not only were the pilots able to fly service ships, but the mechanics demonstrated their efficiency by maintaining the service planes almost entirely without the assistance of the Regulars.

During all this flying of service types of ships—and some of these pilots put in over 25 hr. in about ten flying days—there was not the slightest semblance of an accident, not even a tail skid was broken.

Naval Aviation

New Organization of Naval Aircraft Units—Recent changes in U. S. Naval Regulations provide for a reorganization of naval aviation units as follows:

(1) *Aircraft squadron*—The standard administrative and tactical unit in all naval aviation operations; it is composed usually of 18 planes, together with the necessary personnel for their operation, maintenance, minor overhaul, and minor repairs. In the case of an airship or kite balloon squadron the number of airships or balloons in the squadron is usually 8. The personnel of an air squadron (for facilitating its transfer from shore to ship and vice versa, or from ship to ship) usually will include also the necessary numbers and ratings of enlisted men required for compartment (or hangar), cleaning, supply, subsistence, medical, and clerical duties. A squadron may be subdivided into two or more of the following units:

(a) Aircraft division—A tactical and administrative subdivision of a squadron composed usually of six planes, together with the neecssary personnel for their operation and maintenance. In the case of airships and kite balloons the number in a division is usually four.

(b) Aircraft section—A tactical and administrative subdivision of a squadron composed usually of two but sometimes of one plane of a squadron, together with the necessary personnel for operation and maintenance. In the case of airships and kite balloons the number in a section is usually two.

(c) Flight—A tactical unit of aircraft, usually six, together with the necessary personnel for their operation.

(2) *Aircraft group*—An aircraft task organization composed of more than one flight.

(3) *Fleet Aircraft Squadrons* (formerly called Fleet Air Force)—An organization composed of all the aircraft squadrons, divisions, and sections assigned to duty in a fleet, together with all surface vessels in that fleet which are assigned exclusively to aeronautic duties. Parts of this organization may not be permanently under Fleet Aircraft Squadrons command; such as aircraft units regularly stationed on board vessels not under Fleet Aircraft Squadrons command. Such aircraft units may be temporarily under Fleet Aircraft Squadrons command when they are on detached service from their vessels and assigned for training or tactical exercises or when forming a part of an aircraft task group.

(4) *Force Aircraft Squadrons*—Aircraft squadrons and surface vessels from the Fleet Aircraft Squadrons assigned to duty with a force of the fleet. Force Aircraft Squadrons shall contain in their designation the name of the force to which assigned; for example: Battle Force Aircraft Squadrons, Scouting Force Aircraft Squadrons, etc.

An aircraft squadron, or, if acting singly, an aircraft division or section shall be commanded by a naval aviator of the line of the Navy or Marine Corps.

The officer assigned in charge of an aircraft division shall be designated "Leader" of that division; a division leader shall be a naval aviator of the line of the Navy or Marine Corps.

The officer assigned in charge of an aircraft section shall be designated "Leader" of that section; a section leader shall be a naval aviator of the line of the Navy or Marine Corps.

The senior naval aviator in a flight shall be designated "Leader" of that flight.

The senior line officer of the Navy or Marine Corps in an aircraft group shall be designated "Leader" of that group.

Coming Aeronautical Events

FOREIGN

1923

Dec. 15-Jan. 2 — *8th International Aeronautic Exposition, Paris, France.*

June — *International Aero Congress, London.*

Aircraft squadrons, divisions, or sections may be assigned to tenders, carriers, or other vessels; or they may be organized as separate units to operate independently of any particular vessel or shore station.

Aircraft organizations assigned to a vessel shall be an integral part of the organization of that vessel. Aircraft organizations assigned to a shore station shall be an integral part of that command, under the direction of, and responsible to, the commanding officer thereof.

Aircraft organizations assigned to and quartered on board carriers, tenders, or other auxiliary vessels shall constitute the air department of such vessel. Aircraft organizations assigned to and quartered on board other vessels of the fleet shall constitute a part of the gunnery department of such vessels.

When aircraft organizations or parts of organizations are temporarily based on any regularly commissioned vessel of the Navy for any purpose they shall be regarded during such time as being attached to that vessel.

The senior naval aviator of the Navy or Marine Corps attached to an aircraft squadron temporarily based on shore by proper authority shall have the same authority and responsibility over that unit as is vested in the commanding officer of a regularly commissioned vessel, and authority to order summary and deck courts-martial and to impose the punishments authorized by Article 26 of the Articles for the government of the Navy upon any personnel under his command is granted such naval aviator.

* * *

Aerial Target Practice—According to the New York *Globe*, five hits from twenty-two shots fired at a target towed through the air by a seaplane were reported on Nov. 23 by observers to have been made by anti-aircraft guns at Fort Monroe during the joint maneuvers of the coast artillery and air service. The target 14 ft. long and 3 ft. in diameter, was attached to the 'plane by a 2,500 ft. tow line.

The shots were fired at an average range of 3,000 yd., while 'plane and target were moving at altitudes between 5,500 and 7,000 ft. During part of the test machine guns at Fort Monroe joined in the firing, but observers said the range was too long for them.

Lieutenant Patterson of the Hampton Roads naval air station is said to have piloted the plane.

* * *

Deck Landing Practice at San Diego Naval Air Station—Following the success of the deck landings made on the aircraft carrier Langley as a result of preliminary practice in landing on a dummy deck at Hampton Roads, the naval air station at San Diego, Calif., will also be equipped with a dummy deck.

This deck will be the exact replica of the decks of the U.S.S. Langley and airplane carriers under construction, 800 ft. in length, 125 ft. in breadth. Arresting devices will also be installed by means of which a plane landing will be brought to a full stop before reaching the end of the run-way.

* * *

Naval Orders—Lieut. William P. Bacon, det. Office, General Inspector of Naval Aircraft, East. Distr., Garden City, L. I.; to Nav. Inspector of Av. Material, Curtiss Aeroplane & Motor Corp., Buffalo, N. Y.

Lt. j.g. Cornelius J. O'Connor, det. Nav. Aircraft Factory, Philadelphia; to U.S.S. Utah.

Ens. Edgar W. Sheppard, det. U.S.S. Wright; to Bu. Aero., Navy Dept.

Comdr. Theodore G. Ellyson, det. Bu. Aer., Navy Dept.; to U. S. Naval Mission to Brazil.

Lt. j.g. Riffel G. Rhoton, det. Aircraft Sqds., Scouting Fleet; to Destroyer Sqds., Pacific Fleet.

Lt. Comdr. Marc A. Mitscher, det. command Nav. Air Sta. Anacostia, D. C.; to Bu. Aer., Navy Dept.

Lieut. j.g. Julian B. Noble, det. Nav. Air Sta. Anacostia, D. C.; to Aircraft Sqds. Battle Fleet.

Capt. Albert W. Marshall, det. Chief of Staff, Destr. Sqds. Pacific Fleet; to Comdr. Aircraft Sqds. Battle Fleet.

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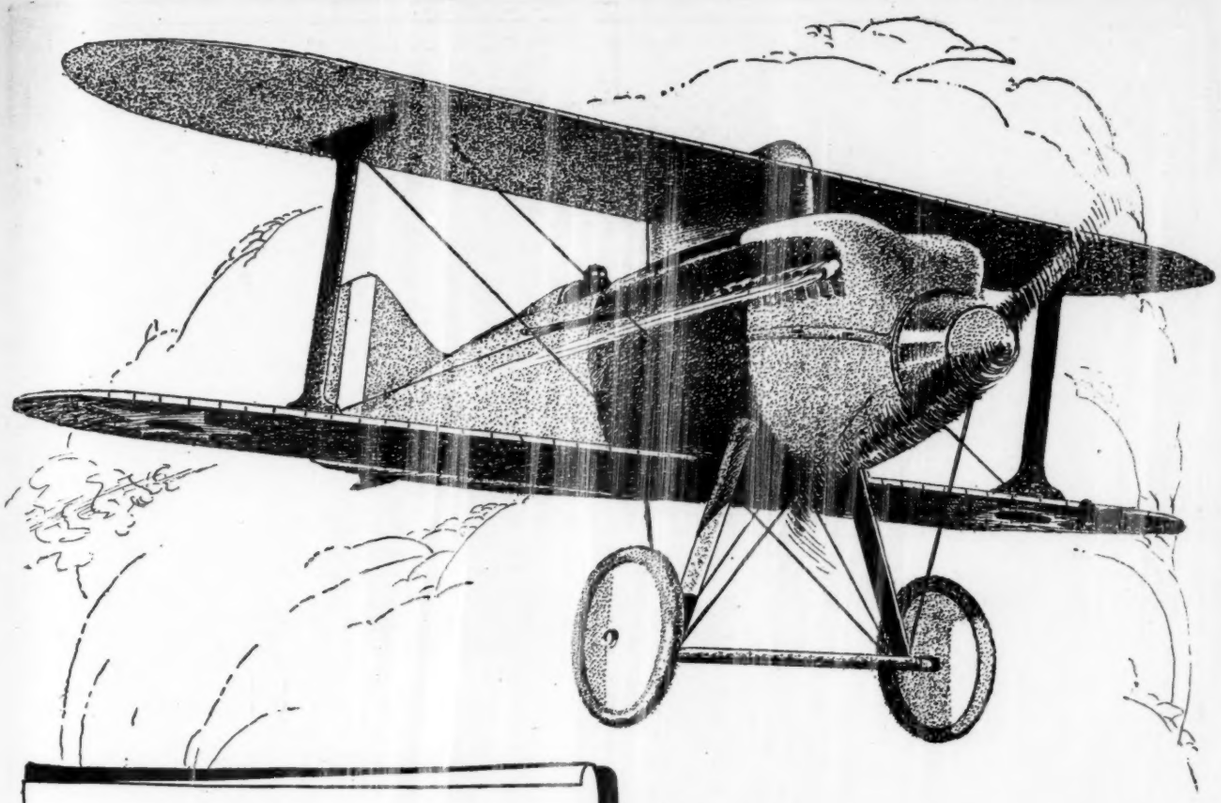

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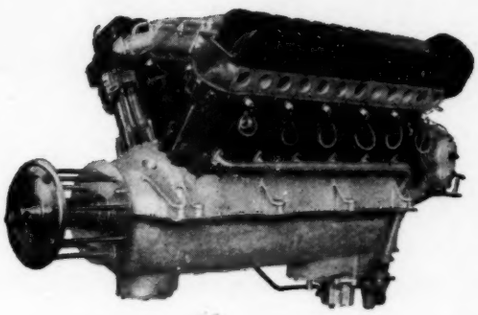

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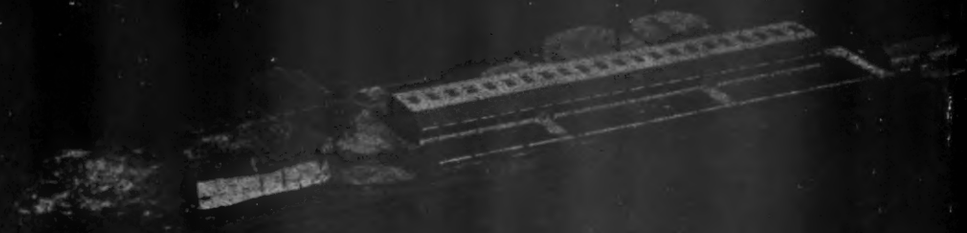

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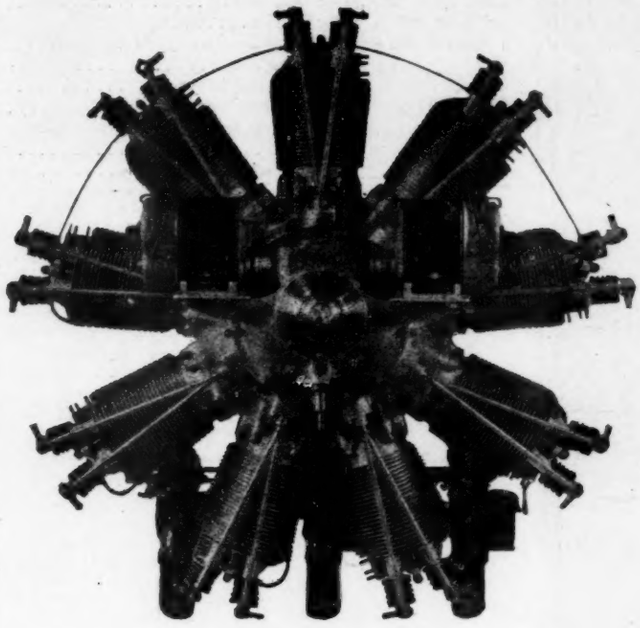

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